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EXAMINER	
ROSENBERG, LAURA B	

ART UNIT	PAPER NUMBER
3616	

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/945,311	HASEGAWA, TAKAHIKO	
	Examiner	Art Unit	
	Laura B Rosenberg	3616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,7-14,16-26,29-32,35 and 36* is/are pending in the application.

4a) Of the above claim(s) *10-12* is/are withdrawn from consideration.

5)☒ Claim(s) *7-9,25,26,29-32,35 and 36* is/are allowed.

6)☒ Claim(s) *1-3,13,14 and 16-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

RD

DETAILED ACTION

1. This office action is in response to the amendment filed on 28 February 2005, in which claims 1-3, 13, 18, 22, and 35 were amended and claims 4-6 were canceled.

Claim Objections

2. Claim 16 is objected to because it depends from a canceled claim. For the purposes of examination, the examiner assumes that claim 16 depends from independent claim 13.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tzanev (6,268,794) in view of Bohn (6,336,648). In regards to claim 1, Tzanev discloses a motorcycle (#11) comprising a frame (not labeled; figure 2), a front wheel (not labeled; figure 2) steerably attached to the frame, a rear wheel (not labeled; figure 2) attached to the frame, a motive member (#11A) mounted to the frame and connected to the rear wheel (motorcycles are rear-wheel drive), a control unit (#12) electrically connected to the motive member and comprising an outer housing (#13), and an accelerometer (#40) mounted within the outer housing and electrically communicating

with the control unit (best seen in figure 1). The accelerometer is adapted to output an output signal that varies with a proportional relation to a leaning angle of the motorcycle when turning (column 4, line 55-column 6, line 12), the control unit being adapted to compare the output signal to a threshold signal range and to decrease the output of the motive member if the output signal is outside the threshold signal range (column 7, line 64-column 8, line 7). Tzanev does not disclose the accelerometer being configured to detect acceleration in a vertical direction and a horizontal direction relative to the frame. Bohn teaches a motorcycle (column 1, lines 13-14) comprising a frame, a front wheel steerably attached to the frame, a rear wheel attached to the frame, and a motive member mounted to the frame and connected to at least one of the front wheel and the rear wheel (all of these features are inherent in a motorcycle). Bohn further teaches an accelerometer (#14) configured to detect acceleration in a vertical direction and a horizontal direction relative to the frame (column 5, lines 22-36). It would have been obvious to one skilled in the art at the time that the invention was made to modify the accelerometer of Tzanev such that it comprised an ability to detect acceleration in a vertical direction and a horizontal direction as claimed in view of the teachings of Bohn so as to accurately sense the tilt, forward velocity, and vertical acceleration of the motorcycle (Bohn: column 5, lines 22-36), thus allowing for a more controlled response to these conditions.

In regards to claim 2, Tzanev discloses the accelerometer (#40) being mounted generally "horizontally". The examiner notes that the horizontal direction is not claimed

as being relative to a particular direction or view of the vehicle. Thus, the accelerometer would be mounted generally horizontally, depending upon the intended viewpoint.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tzanev (6,268,794) in view of Bohn (6,336,648), and further in view of Schiffmann (6,192,305). In regards to claim 3, Tzanev does not disclose the output signal varying as a mathematical sine of the leaning angle. Schiffmann teaches a wheeled vehicle comprising a control unit (#22) and accelerometers (#12-20) electrically communicating with the control unit (column 5, lines 3-4). The accelerometers output a signal that varies as a mathematical sine of a leaning angle (current roll angle Φ; column 7, lines 7-33) during a turn (at any time). It would have been obvious to one skilled in the art at the time that the invention was made to modify the accelerometer of Tzanev such that it comprised an output signal that varies as a mathematical sine of the leaning angle during a turn as claimed in view of the teachings of Schiffmann so as to provide a reliable, low-cost rollover sensor that more accurately predicts an overturn condition of a vehicle (Schiffmann: column 1, lines 54-67).

6. Claims 13, 14, 16, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tzanev (6,268,794) in view of Saito et al. (5,758,301), further in view of Bohn (6,336,648). In regards to claim 13, Tzanev discloses a method of controlling operations of a motorcycle (#11) during an accident, the motorcycle having an electronic control unit (#12) that comprises a control circuit (best seen in figure 1) that is

in electrical communication with an accelerometer (#40) configured to detect acceleration in a transverse (lateral) horizontal direction relative to the forward direction of travel of the vehicle (column 1, lines 51-52), the electronic control unit adapted to control operation of a motive member (#11A) and a fuel pump (not shown, but referred to in column 2). The method comprises sensing an output signal from the accelerometer, which varies in accordance with a proportional relationship to a leaning angle of the motorcycle during turning (column 4, line 55-column 6, line 12), comparing the output signal with a preset threshold level, and if the output signal exceeds the preset threshold level, then disabling the motive member (column 7, line 64-column 8, line 7). Tzanev does not disclose that the accelerometer is a semiconductor accelerometer. Saito et al. teach a method of controlling operations of a vehicle during an accident, the vehicle having a semiconductor accelerometer (#10), and the method comprising sensing an output signal from the accelerometer, comparing the output signal with a preset threshold level, and if the output signal exceeds the preset threshold level, then operating an occupant restraint system (column 1, line 66-column 2, line 10). It would have been obvious to one skilled in the art at the time that the invention was made to modify the accelerometer of Tzanev such that it comprised a semiconductor as claimed in view of the teachings of Saito et al. so as to accurately detect acceleration/deceleration in the event of an accident. Further, the examiner notes that in the absence of justification for the need for a semiconductor-type accelerometer instead of another type of accelerometer, the use of an equivalent accelerometer, such as that disclosed in the Tzanev reference, would have been an

obvious modification. Tzanev also does not disclose an accelerometer configured to detect acceleration in a vertical direction. Bohn teaches an accelerometer (#14) configured to detect acceleration in a vertical direction (column 5, lines 22-36). It would have been obvious to one skilled in the art at the time that the invention was made to modify the motorcycle of Tzanev such that it comprised an accelerometer configured to detect acceleration in a vertical direction as claimed in view of the teachings of Bohn so as to indicate the degree of roughness of the riding surface and counteract the initiation of a dive condition due to hard braking (Bohn: column 1, lines 11-18; column 5, lines 45-48).

In regards to claim 14, Tzanev discloses the motive member only being disabled if the output signal exceeds the preset threshold level for a preset period of time (tip-over time; column 7, line 64-column 8, line 7).

In regards to claim 16, Tzanev discloses the preset threshold level generally corresponding to a non-recoverable lean angle (tip angle).

In regards to claim 20, Tzanev discloses the motive member being disabled by interruption of ignition (via ignition module #20; column 8, lines 2-7).

In regards to claim 21, Tzanev discloses the motive member being disabled by interruption of fuel injection (via engine control module ECM #20A; column 8, lines 2-7).

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tzanev (6,268,794) in view of Saito et al. (5,758,301), further in view of Bohn (6,336,648), and further in view of Sasaki (5,033,428). Tzanev discloses disabling the motive member if

the output signal exceeds the preset threshold level for a preset period of time. However, Tzanev does not specifically disclose disabling a fuel pump associated with the motive member as the method of disabling the motive member. Sasaki teaches a method of controlling operations of a vehicle during an accident, the vehicle having an electronic control unit (#1, 700) that comprises a control circuit (best seen in figure 2 within dashed lines) that is in electrical communication with an accelerometer (#15, 800), the electronic control unit adapted to control operation of a motive member (#100) and a fuel pump (#18, 300). The method comprises sensing an output signal from the accelerometer, which varies in accordance with a leaning angle of the vehicle during turning, comparing the output signal with a preset threshold level, and if the output signal exceeds the preset threshold level, then disabling the motive member (column 3, lines 26-36). Sasaki also teaches disabling a fuel pump (#18, 300) associated with a motive member (#100) if an output signal exceeds a preset threshold level. It would have been obvious to one skilled in the art at the time that the invention was made to modify the method of controlling operations of a motorcycle during an accident of Tzanev such that it comprised disabling a fuel pump associated with the motive member as claimed in view of the teachings of Sasaki so as to quickly stop the motive member.

8. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tzanev (6,268,794) in view of Saito et al. (5,758,301), further in view of Bohn (6,336,648), and further in view of Carlson et al. (6,417,767). In regards to claims 18 and 19, Tzanev does not disclose the output signal being indicative of a deceleration

rate with the preset threshold level corresponding to a rate of acceleration greater than that encountered during a panic braking operation. Carlson et al. teach a method of controlling operations of a vehicle (#24) during an accident, the vehicle having an electronic control unit (#20) and an accelerometer (#16) electrically communicating with the control unit (best seen in figure 1), and the method comprising sensing an output signal from the accelerometer, comparing the output signal with a preset threshold level, and if the output signal exceeds the preset threshold, then sending out a warning signal (column 3, lines 39-46). The accelerometer outputs a signal that is indicative of a deceleration/acceleration rate of the vehicle (column 4, lines 2-7) and the preset threshold level generally corresponds to a rate of deceleration/acceleration greater than that encountered during a panic braking operation (column 5, lines 5-20). It would have been obvious to one skilled in the art at the time that the invention was made to modify the accelerometer of Tzanev such that it comprised an output signal indicative of a deceleration rate and a corresponding preset threshold level as claimed in view of the teachings of Carlson et al. so as to provide a sensor system that indicates when excessive acceleration or deceleration, and thus an unsafe driving condition, is occurring (Carlson et al.: column 3, lines 32-52).

9. Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tzanev (6,268,794) in view of Saito et al. (5,758,301), further in view of Bohn (6,336,648), and further in view of Schiffmann (6,192,305). In regards to claims 22-24, Tzanev does not disclose the use of a correction reading or an electrically erasable

programmable read-only memory (EEPROM). Schiffmann teaches a method of controlling operations of a vehicle during an accident, the vehicle having an electronic control unit (#22) and accelerometers (#12-20) electrically communicating with the control unit (column 5, lines 3-4), the method comprising sensing an output signal from the accelerometers, comparing the output signal with a preset threshold level, and if the output signal exceeds the preset threshold level, then providing a signal indicating a vehicle overturn condition (column 2, lines 16-26). Associated with the electronic control unit is an EEPROM (#24) that stores various programmed calibrations for performing the rollover sensing algorithm (column 4, lines 54-59). Although not specifically disclosed, it is old and well known in the art that the process of calibrating any system for an apparatus involves placing the system in test mode, placing the apparatus in a neutral state or position, obtaining a corrected reading for the apparatus, storing the corrected reading, and adjusting a current reading based on the calibrated corrected reading. It would have been obvious to one skilled in the art at the time that the invention was made to modify the method of controlling operations of a vehicle during an accident of Tzanev such that it comprised an EEPROM and test mode as claimed in view of the teachings of Schiffmann so as to store calibration values for accurately determining if/when a vehicle rollover will occur (Schiffmann: column 4, lines 54-58).

Allowable Subject Matter

10. Claims 7-9, 25, 26, 29-32, 35, and 36 are allowed.

Response to Arguments

11. Applicant's arguments filed 28 February 2005 have been fully considered but they are not persuasive. In regards to claims 1 and 13, the examiner maintains that Tzanev discloses an accelerometer adapted to output an output signal that varies with a proportional relation to a leaning angle of the motorcycle during turning and a control unit that is adapted to decrease the output of the motive member if the output signal is outside a threshold signal range, as set forth in the rejection above. As stated in the Response to Arguments in the previous office action, Tzanev discloses in column 5:

> "When the vehicle changes attitude or orientation, however, lateral forces acting on the vehicle are not fully cancelled by the centrifugal forces acting on the vehicle. Thus, the [accelerometer] senses such changes as they occur".

Thus, the accelerometer is able to output an output signal that varies with a leaning angle of the motorcycle when turning. Since the phrase "proportional relation to" was added to claim 1 and, as stated by the applicant, only means that the value of the output signal changes with changes in the leaning angle, then the Tzanev reference also reads on this limitation since the output signal of Tzanev varies with a leaning angel of the motorcycle during turning. Further, the Bohn reference is being relied upon for its teaching of a biaxial accelerometer, not for its teaching of other features of the applicant's claimed invention.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura B Rosenberg whose telephone number is (571) 272-6674. The examiner can normally be reached on Monday-Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on (571) 272-6669. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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